

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	227790 5	(cell or chamber or reactor or vessel or channel)	US-PGPUB; USPAT
2	BRS	L2	11683	(cell or chamber or reactor or vessel or channel) same (working or counter) with electrode	US-PGPUB; USPAT
3	BRS	L3	84	2 and (heater or heating) with working near8 electrode	US-PGPUB; USPAT
4	BRS	L4	4	2 and (heater or heating) with working near8 electrode same temperature near8 (sensor or detector)	US-PGPUB; USPAT
5	BRS	L5	170	2 and electrochemiluminescence	US-PGPUB; USPAT
6	BRS	L6	2	3 and electrochemiluminescence	US-PGPUB; USPAT
7	BRS	L7	3	3 and (peltier or resistive near8 heater)	US-PGPUB; USPAT
8	BRS	L8	159	2 and (peltier or resistive near8 heater)	US-PGPUB; USPAT
9	BRS	L9	300	2 and (peltier or (sonic or infrared or resistive or resistance) near8 heater)	US-PGPUB; USPAT
10	BRS	L10	16	3 and (peltier or (sonic or infrared or resistive or resistance) near8 heater)	US-PGPUB; USPAT
11	BRS	L11	36	3 and (resistance or thermistor or thermocouple or thermometer or infrared) with temperature	US-PGPUB; USPAT
12	BRS	L12	20	5 and (resistance or thermistor or thermocouple or thermometer or infrared) with temperature	US-PGPUB; USPAT
13	BRS	L13	1	3 and (photodetector or photosensor or photodiode)	US-PGPUB; USPAT

	Type	L #	Hits	Search Text	DBs
14	BRS	L14	499	2 and (photodetector or photosensor or photodiode)	US- PGPUB; USPAT
15	BRS	L15	88	5 and (photodetector or photosensor or photodiode)	US- PGPUB; USPAT
16	BRS	L16	29	5 and optical near8 filter	US- PGPUB; USPAT
17	BRS	L17	94	14 and optical near8 filter	US- PGPUB; USPAT

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NEWS	11	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
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NEWS	14	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS	15	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS	16	MAY 10	CA/CAPLUS enhanced with 1900-1906 U.S. patent records
NEWS	17	MAY 11	KOREAPAT updates resume
NEWS	18	MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS	19	MAY 30	IPC 8 Rolled-up Core codes added to CA/CAPLUS and USPATFULL/USPAT2
NEWS	20	MAY 30	The F-Term thesaurus is now available in CA/CAPLUS
NEWS	21	JUN 02	The first reclassification of IPC codes now complete in INPADOC
NEWS EXPRESS			FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005. V8.0 AND V8.01 USERS CAN OBTAIN THE UPGRADE TO V8.01a AT http://download.cas.org/express/v8.0-Discover/
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=> s (cell or chamber or reactor or vessel or channel) (p) (working or counter)

(8w) electrode

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH

FIELD CODE - 'AND' OPERATOR ASSUMED 'CHANNEL' (P) '

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH

FIELD CODE - 'AND' OPERATOR ASSUMED 'CHANNEL' (P) '

L1 6255 (CELL OR CHAMBER OR REACTOR OR VESSEL OR CHANNEL) (P) (WORKING
OR COUNTER) (8W) ELECTRODE

=> s l1 and (heater or heating) (s) working (8w) electrode

L2 26 L1 AND (HEATER OR HEATING) (S) WORKING (8W) ELECTRODE

=> s l1 and electrochemiluminescence

L3 51 L1 AND ELECTROCHEMILUMINESCENCE

=> s l2 and electrochemiluminescence

L4 0 L2 AND ELECTROCHEMILUMINESCENCE

=> s l2 and (peltier or ((resistive or resistance) (8w) heater))

L5 0 L2 AND (PELTIER OR ((RESISTIVE OR RESISTANCE) (8W) HEATER))

=> s l2 and (peltier or ((sonic or infrared or resistive or resistance) (8w)
heater))

L6 0 L2 AND (PELTIER OR ((SONIC OR INFRARED OR RESISTIVE OR RESISTANC
E) (8W) HEATER))

=> s l2 and (peltier or ((sonic or infrared or resistive or resistance) (s) heater))

L7 1 L2 AND (PELTIER OR ((SONIC OR INFRARED OR RESISTIVE OR RESISTANC
E) (S) HEATER))

=> s l2 and (resistance or RTD or thermistor or thermocouple or thermometer or
infrared) (s) temperature

L8 4 L2 AND (RESISTANCE OR RTD OR THERMISTOR OR THERMOCOUPLE OR THERM
OMETER OR INFRARED) (S) TEMPERATURE

=> s l2 and (photodetector or photosensor or photodiode)

L9 0 L2 AND (PHOTODETECTOR OR PHOTSENSOR OR PHOTODIODE)

=> s l2 and optical (8w) filter?

L10 0 L2 AND OPTICAL (8W) FILTER?

=> s l2 and l3

L11 0 L2 AND L3

=> s l2 and electrochemiluminescence

L12 0 L2 AND ELECTROCHEMILUMINESCENCE

=> display l2 1-26 ibib abs

L2 ANSWER 1 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:480059 CAPLUS

TITLE: Fabrication method of microfluidic chip

INVENTOR(S): Wang, Shenggao; Wang, Jianhua; Yang, Maorong; Li, Yanqiong; Wang, Tao

PATENT ASSIGNEE(S): Wuhan Institute of Chemical Technology, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10 pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1773274	A	20060517	CN 2005-10019720	20051103
PRIORITY APPLN. INFO.:			CN 2005-10019720	20051103

AB The title method comprises (1) preparation of glass chip, including providing raw materials for glass manufacture, adding photosensitizer and nucleating agent, melting at high temperature, drawing or casting, polishing, irradiating, **heating**, and acid-corroding to obtain microflow **channels**, liquid tank, high-pressure isolating structure and cavity array for integration of electrodes on the glass chip; (2) integration of carbon nanotube **working electrode**, reference **electrode** and counter **electrode** into the corresponding glass cavities by plasma chemical vapor deposition, hot-filament chemical vapor deposition or high-temperature pyrolysis; and (3) packaging of the microfluidic chip.

L2 ANSWER 2 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:10720 CAPLUS

DOCUMENT NUMBER: 144:97414

TITLE: Excimer lamps for obtaining vacuum UV light with high efficiency

INVENTOR(S): Sumitomo, Takashi

PATENT ASSIGNEE(S): Ushio Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp. CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006004701	A2	20060105	JP 2004-178281	20040616
PRIORITY APPLN. INFO.:			JP 2004-178281	20040616

AB The lamps, useful for UV irradiation apparatus for cleaning semiconductor wafers

and liquid crystal substrates, consist of Xe-filled double-wall discharge **vessels** (A), 1st electrodes outside the outer tubes of A, 2nd electrodes inside the inner tubes of A, and heating systems for heating outer surfaces of the outer tubes and/or inner surfaces of the inner tubes. The lamps, consisting of Xe-filled discharge **vessels**, outer electrodes, inner electrodes, and outer **heating** systems

and/or inner **heating** systems (comprising cylinders containing heat-exchanging media and preferably **working** as the inner **electrodes**), are also claimed.

L2 ANSWER 3 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:958458 CAPLUS
DOCUMENT NUMBER: 140:398509
TITLE: Apparatus and technology of radio-frequency-d.c. multilayer glow discharge ion implantation
INVENTOR(S): Gao, Yuan; Xu, Hong
PATENT ASSIGNEE(S): Taiyuan Polytechnic University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1386896	A	20021225	CN 2002-110182	20020318
PRIORITY APPLN. INFO.:			CN 2002-110182	20020318

AB The apparatus consists of a radio-frequency sputtering target , a high-potential d.c. sputtering target (a conductor), a hollow **working electrode** capable of generating glow discharge through hollow cathode effect, an insulator, a metal plate, radio-frequency power source (13.56 MHz, 27.12 MHz, 40.68 MHz, etc.), high-potential d.c. sputtering power source, high-potential d.c. **heating** power source, evacuating system, gas-introducing system, and a rotating mechanism for rotating hollow workpiece. The operation comprises placing an insulator on the bottom of the vacuum **chamber** , placing a metal plate on the insulator, placing the hollow **working electrode** on the metal plate, placing workpieces in the hollow **working electrode**, evacuating to 5 x 10⁻⁴ Pa, introducing Ar to 10 Pa, turning on the rotating system to rotate the workpieces, and then conducting ion implantation under sputtering.

L2 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:480506 CAPLUS
DOCUMENT NUMBER: 137:56619
TITLE: Laminating gas sensor for gas analysis
INVENTOR(S): Nakae, Makoto; Nakano, Shuichi; Saito, Toshitaka
PATENT ASSIGNEE(S): Denso Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002181764	A2	20020626	JP 2000-374767	20001208
US 2002070736	A1	20020613	US 2001-2132	20011205
US 6580280	B2	20030617		
FR 2817966	A1	20020614	FR 2001-15850	20011207
FR 2817966	B1	20050128		
DE 10160105	A1	20030227	DE 2001-10160105	20011207
PRIORITY APPLN. INFO.:			JP 2000-374767	A 20001208

AB The title sensor comprises an O ion conductive solid electrolyte substrate, a **working electrode** formed on the surface of one side of the substrate, a standard electrode on the other side of the substrate facing a standard gas **chamber**, a pair of leads with one end connecting to the electrodes and the other end for signal output, a

heater, and a heater control. The elec. circuit satisfies the relationship of $B/A < 0.5$ at room temperature, where B is the resistance of the lead unit and A the total resistance of the circuit including the solid electrolyte substrate, electrodes, and the lead unit while the sensor is active. At least one lead of the pair is made of material having a resistance temperature coefficient of $3 \times 10^{-3}/^{\circ}\text{C}$.

L2 ANSWER 5 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:741247 CAPLUS

DOCUMENT NUMBER: 135:307854

TITLE: Laminate-type oxygen sensing elements and their production and oxygen sensor

INVENTOR(S): Makino, Keisuke; Yasuda, Toshikatsu; Aoki, Ryohei; Okawa, Tetsuhira

PATENT ASSIGNEE(S): NGK Spark Plug Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2001281208	A2	20011010	JP 2000-98792	20000331
PRIORITY APPLN. INFO.:			JP 2000-98792	20000331

AB The title sensor comprises galvanic cell-type oxygen sensing elements formed from **working electrode** and standard **electrode**, a porous ceramic insulation layer covered by a thermal resistant pattern, and a zirconia solid electrolyte layer sandwiched by the **heater** layers. The inner surface of the ceramic heater is formed by partially removing the alumina insulation layer from where the impurities or organic additives can be effectively evaporated during sintering. The sensor is highly durable and effective for determining oxygen concentration in flue gases from internal-combustion engines.

L2 ANSWER 6 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:565980 CAPLUS

DOCUMENT NUMBER: 135:109287

TITLE: Electromagnet with a toroidal coil for a structured magnetic field in a furnace for annealing of beryl crystals suitable for gemstones

INVENTOR(S): Rudnev, S. V.; Antipin, L. V.; Mevlyutov, S. S.

PATENT ASSIGNEE(S): Russia

SOURCE: Russ., No pp. given

CODEN: RUXXE7

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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RU 2145453	C1	20000210	RU 1997-119617	19971203
PRIORITY APPLN. INFO.:			RU 1997-119617	19971203

AB The annealing furnace is equipped with an electromagnet having toroidal coil, and includes thermal-insulation zone with the **working chamber**, **electrodes**, and power supply with nonmagnetic **heater**. Beryl crystals are cleaned, rinsed with distilled water, and dried in a cabinet at $105-120^{\circ}$ for 24-72 h, followed by protonation in molten benzoic acid at $130-140^{\circ}$. The cleaned crystals are placed in the furnace, heated at $5-15^{\circ}/\text{h}$ to $450-500^{\circ}$, held for 24-72 h, and cooled at $5-15^{\circ}/\text{h}$ to room temperature. The crystals

during the heating in furnace are exposed to d.c. magnetic field of 400-450 A/m, and electrostatic field intensity of 3000 V/m. The magnetically treated crystals are held in water for 72-120 h, and then are compared with a standard to evaluate the improvement of natural properties for gemstones.

L2 ANSWER 7 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:891181 CAPLUS
DOCUMENT NUMBER: 134:122652
TITLE: Thermal activation of electrochemical processes in a Rf-heated channel flow cell: experiment and finite element simulation
AUTHOR(S): Qiu, F.; Compton, R. G.; Coles, B. A.; Marken, F.
CORPORATE SOURCE: Physical and Theoretical Chemistry Laboratory, Oxford University, Oxford, OX1 3QZ, UK
SOURCE: Journal of Electroanalytical Chemistry (2000), 492(2), 150-155
CODEN: JECHES; ISSN: 0368-1874
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel approach to thermoelectrochem. is presented which involves the direct **heating** of the **working electrode** in a **channel** flow **cell** system by eddy currents caused by 8 MHz radio frequency (Rf) radiation. For the model redox systems Fe(CN)₆^{3-/4-} and Ru(NH₃)₆^{3+/2+} it is possible to perform electrochem. expts. with simultaneous thermal activation at temps. close to the b.p. of the electrolyte solution. Quant. anal. of data obtained from thermoelectrochem. studies in the Rf-heated **channel** flow system is possible with the help of a computer model. Numerical simulation results obtained with a finite element program (FIDAP) for the complex heat and mass flow during voltammetric expts. at the heated electrode are in quant. agreement with exptl. data. Both the increase in the rate of diffusion as well as the change in the flow pattern in the heated low viscosity region of the **channel** contribute significantly to the enhanced mass transport. After confirming the quant. agreement of the numerical model with the data obtained for the oxidation of Fe(CN)₆⁴⁻ and the reduction of Fe(CN)₆³⁻ in 0.1M KCl, the activation energy for the Ru(NH₃)₆^{3+/2+} redox system diffusion in 0.1M KCl is determined

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:520097 CAPLUS
DOCUMENT NUMBER: 131:234761
TITLE: A temperature controlled cell for in situ infrared spectroelectrochemical measurements and its use in the study of CO isothermal desorption
AUTHOR(S): Huang, J.; Korzeniewski, C.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, USA
SOURCE: Journal of Electroanalytical Chemistry (1999), 471(2), 146-150
CODEN: JECHES; ISSN: 0368-1874
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An IR spectroelectrochem. **cell** capable of operation at temps. between ambient and 70° is described. The **cell** is based on a conventional design with temperature sensing and **heating** functions built into the **working electrode**. The **cell** was applied to study the isothermal desorption of carbon monoxide from a polycryst. platinum electrode. The measurements indicate CO desorption can be activated by the solvent. In acetonitrile containing

0.1M tetrabutylammonium tetrafluoroborate (TBAF), the lifetime of a CO adlayer decreased progressively from .apprx.6 h to <2 h when CO desorption was monitored at constant temps. in the range 25-45° and potentials between 0.0-0.2 V (vs. a Ag|AgCl|KCl (sat) reference electrode). In contrast, CO was stable on platinum electrodes in 0.1M HClO₄ at temps. between ambient and 40°, as long as the electrode was maintained at double layer potentials. In acetonitrile solns., the addition of chloride, oxygen or one of several organic impurities had little effect on the CO desorption behavior.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 9 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:614431 CAPLUS
DOCUMENT NUMBER: 127:302659
TITLE: All range oxygen sensors
INVENTOR(S): Miyata, Shigeru; Yabuta, Katsuhisa
PATENT ASSIGNEE(S): NGK Spark Plug Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09236578	A2	19970909	JP 1996-44910	19960301
PRIORITY APPLN. INFO.:			JP 1996-44910	19960301

AB The title sensor comprises a gas diffusion control **chamber**, a solid electrolyte O ion conductive substrate having **working electrode** on diffusion control **chamber** side and a reference electrode on standard gas side, an O pump for migrating O ions between the gas of diffusion control **chamber** and sample gas, a concentration elec. **cell** which gives an output signal corresponding to O concentration, and an a.c. electrode **heater**. The solid electrolyte substrate and the heater are formed simultaneously by sintering. The O concentration is determined based on the elec. **cell** output signal and the elec. current passed through the ion pump.

L2 ANSWER 10 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:774701 CAPLUS
DOCUMENT NUMBER: 123:148251
TITLE: Solid-electrolyte air/fuel ratio detector
INVENTOR(S): Nakano, Shuichi; Sugiyama, Tomio; Fukaya, Tomoji; Suzuki, Masatoshi
PATENT ASSIGNEE(S): Nippon Denso Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07120429	A2	19950512	JP 1994-182158	19940803
JP 3355796	B2	20021209		
US 5419828	A	19950530	US 1994-299058	19940831
PRIORITY APPLN. INFO.:			JP 1993-240361	A 19930831
			JP 1994-182158	A 19940803

AB The title detector includes a **cell** which comprises a solid electrolyte, a **working electrode** and a gas-diffusion

resistance layer laminated on 1 side of the solid electrolyte in sequence, and a reference electrode, an atmospheric air introduction duct and elec. **heaters** laminated on the other side of the solid electrolyte in sequence. The gas-diffusion resistance layer consists of a gas-permeating layer and a gas-isolating layer covered on the surface of the gas-permeating layer, so the gas to be detected is permeated into the gas-diffusion resistance layer from the side of the latter. Preferably, the gas-permeating layer has porosity 2-60% and thickness 5-300 μ m, the gas-isolating layer has porosity $\leq 10\%$, and a porous protective layer is surrounded the **cell**.

L2 ANSWER 11 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:412168 CAPLUS
DOCUMENT NUMBER: 107:12168
TITLE: Method for treating electrodes and improved electrochemical cell
INVENTOR(S): Neti, Radhakrishna M.; Harman, John N., III
PATENT ASSIGNEE(S): Beckman Industrial Corp., USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4655900	A	19870407	US 1986-837802	19860310
PRIORITY APPLN. INFO.:			US 1986-837802	19860310

AB In an electrochem. **cell** for gas anal., at least the **working** surface of a 1st of 2 **electrodes** is coated with a suspension of a catalyst metal and PTFE in an aqueous oligosaccharide solution and **heating** below the sintering temperature of the PTFE to thermally convert the polysaccharide in the presence of the catalyst metal and drive off conversion products, increasing the signal strength of the electrode. The oligosaccharide may be sucrose, glucose, lactose, maltose, and soluble starch. The catalyst may be Pt or its oxide an electrode treated with a catalyst metal/polymer suspension in an aqueous sucrose solution produced a signal of .apprx.0.2 μ A when exposed to a N stream containing 50 ppm CO vs. 0.04-0.08 μ A without the oligosaccharide.

L2 ANSWER 12 OF 26 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:599088 CAPLUS
DOCUMENT NUMBER: 105:199088
TITLE: On the effect of the iron(II)/iron(III) redox couple on oxidation of carbon in hot phosphoric acid
AUTHOR(S): Dhar, H. P.; Christner, L. G.; Kush, A. K.
CORPORATE SOURCE: Energy Res. Corp., Danbury, CT, 06813, USA
SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1986), 213(1), 161-7
CODEN: JEIEBC; ISSN: 0022-0728
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Because graphite/glassy C composites are used in H₃PO₄ fuel **cells** the effect of Fe on the corrosion of C under fuel-**cell** conditions was studied. The **working electrodes** were graphite/glassy C composites, prepared by **heating** a graphite powder with a hydrocarbon resin. The graphite contained .apprx.115 ppm Fe after heating. The **counter electrode** was a Pt screen and the reference **electrode** was reversible H electrode (RHE) at atmospheric pressure and a dynamic H electrode (DHE) at higher pressure. Oxidation studies were made using pure and impure acids containing Fe dissolved in concentrated H₃PO₄. Cyclic voltammograms and corrosion current/time plots are

given to show the effects of Fe.

L2 ANSWER 13 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2006(17):7954 COMPENDEX

TITLE: Si-C-O glass-like compounds as a negative electrode material for li ion battery.

AUTHOR: Konno, H. (Graduate School of Engineering Hokkaido University, Sapporo, 060-8628, Japan); Morishita, T.; Sato, S.; Habazaki, H.; Inagaki, M.

MEETING TITLE: 208th Meeting of The Electrochemical Society.

MEETING LOCATION: Los Angeles, CA, United States

MEETING DATE: 16 Oct 2005-21 Oct 2005

SOURCE: Meeting Abstracts v MA 2005-02 2005.p 738

SOURCE: 208th Meeting of The Electrochemical Society - Meeting Abstracts

ISSN: 1091-8213

PUBLICATION YEAR: 2005

MEETING NUMBER: 67008

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2006(17):7954 COMPENDEX

AB The Si-C-O glass-like compounds have been extensively investigated for negative electrode materials of lithium ion batteries.1 The formed compounds, however, showed large irreversible capacities and charge/discharge potential hysteresis due to oxygen in the compounds, resulting in renunciation of application. In contrast with this, we found that amorphous Si-C-O compound films formed on exfoliated graphite show vary large and steady capacity as a negative electrode for lithium ion battery in spite of a large oxygen content as much as 25 mass%.3 The composites showed no potential hysteresis from the second cycle, though only the first charge capacity was very large. In the present work, sub-micrometer thick particles of Si-C-O glass-like compounds were synthesized using urethane foam (UF) templates, and charge/discharge characteristics were examined. Two types of low molecular weight silicone, $\{CH_3(CH=CH_2)SiO\}_n$ ($n=3-7$, Shin-Etsu Chemical Co. Ltd., VC-4) and $(CH_3)_3SiO\{CH_3(H)SiO\}_m$ ($m \approx 20$, Shin-Etsu Chemical Co. Ltd., KF-99B), and urethane foam pieces (UF No.14, ca. $10 \times 10 \times 3$ mm³, average pore size 420 μ m) were used. A mixture of 43 g of VC-4, 31 g of KF-99B, and Pt catalyst (Pt approx.=0.5 mass%) and catalyst regulator, 0.5 g each, was impregnated into UF pieces, and aged overnight at 50deg C followed by curing at 200deg C for 1 h in air. Formed block type precursors were crushed and heat-treated at 1000-1300deg C for 1 h in Ar (heating rate 400 K h⁻¹). The compounds were fabricated to working electrodes: 10 mass% of PVDF and 10 mass% of carbon black were added as a binder and a conductive agent, respectively, and mixed using drops of N-methyl-2-pyrrolidone, then the mixture was coated on a Ni-mesh followed by drying at 120deg C for 6 h. The electrode was pressed before use. A glass cell with a counter electrode and a reference electrode both of lithium foil was used. Charge/discharge characteristics were measured in a potential range of 0.002-2.5 V vs. Li/Li⁺ at different current densities in 1 mol L⁻¹ LiClO₄ solution of EC:DEC=50:50 vol% or pure PC. With UF of larger pore sizes, silicone compounds do not fill the pores completely, and by curing film-like silicone covers the wall of UF. The UF starts to decompose around 200deg C and more than 80% disappear above 400deg C in Ar, while substantial decomposition of the cured silicone starts above 500deg C. Consequently, when the precursor is not crushed prior to the heat-treatment, the cured silicone layer on the pores wall is left as a spherical shape around 400deg C and decomposes slowly at higher temperatures, resulting in balloon shaped compounds. Mass loss by decomposition of the precursor with UF No.14 was around 30% in a range of 1000-1300deg C. With crushed precursor, irregular shaped chips were formed: size of the chips was smaller than a few micrometers, some were

sub-micrometers, and the thickness was less than a few hundred nanometers. The products were ground with an agate pestle and mortar before use for electrodes. Precise compositional analysis is in progress, but the products contain large amounts of oxygen similar to the previous ones.³ By XRD weak diffraction peaks of beta-SiC were observed for 1300deg C product, but only broad C 002 for the products at low temperatures. By ²⁹Si-MAS-NMR strong signals of siloxane groups and those originated from raw materials were observed for 1000deg C product but they markedly decreased for 1300deg C product. In Fig. 1, capacity-potential curves at 50 mA g⁻¹ measured in the EC-DEC solvent are shown for 1300deg C product. The first charge (Li insertion) capacity is very large but after that all charge/discharge curves nearly coincide up to 15th cycle. The shape of curves is similar to that of hard carbons. Cycle performance of the same sample is shown in Fig.2. The capacity at 2nd cycle is ca.640 mA h g⁻¹ at 50 mA g⁻¹ and ca.410 mA h g⁻¹ at 200 mA g⁻¹, and they slightly decrease with the number of cycles. Coulomb efficiency was larger than 97% after 2nd cycle. The initial capacity at 50 mA g⁻¹ in the PC solvent was similar to Fig.1, but the decrease at 15th cycle was larger, about 15%. The properties of the material must be improved but the results suggest that Si-C-O glass-like compounds are potentially promising. 3 Refs.

L2 ANSWER 14 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN
 ACCESSION NUMBER: 2005(30):11746 COMPENDEX
 TITLE: An enzyme sensor fabricated on a transparency film by applying line patterning method to prepare basal electrodes.
 AUTHOR: Toyama, Shigeru (Research Institute National Rehabilitation Center for Persons with Disabilities, Tokorozawa 359-8555, Japan); Aoki, Kazuhito; Kato, Seishi; Nakamura, Masanori; Usami, Ron
 MEETING TITLE: 2004 Joint International Meeting - 206th Meeting of the Electrochemical Society/2004 Fall Meeting of the Electrochemical Society of Japan,.
 MEETING LOCATION: Honolulu, HI, United States
 MEETING DATE: 03 Oct 2004-08 Oct 2004
 SOURCE: Meeting Abstracts 2004.p 2505
 SOURCE: 2004 Joint International Meeting - 206th Meeting of the Electrochemical Society/2004 Fall Meeting of the Electrochemical Society of Japan, MA 2004-02
 ISSN: 1091-8213
 PUBLICATION YEAR: 2004
 MEETING NUMBER: 65239
 DOCUMENT TYPE: Conference Article
 TREATMENT CODE: Theoretical; Experimental
 LANGUAGE: English
 AN 2005(30):11746 COMPENDEX
 AB An enzyme sensor fabricated using an alternative simple method called 'line patterning method' was reported. The sensor was accomplished by immobilizing glucose oxidase (GOx) on the **working electrode** of the chip. The surface of the **working electrode** (Pt) was made inert to suppress nonspecific response to reducing sugars by applying 1200mV for 15 min in 100mM phosphate buffer solution, before the immobilization. The metal electrodes on a transparency film was fabricated. The films are resistant in the evaporation **chamber** where the temperature sometimes increases over one hundred degrees centigrade, because laser printers utilize **heating** to fix toner on transparency films. The reponse curve of these sensors was also shown.(Edited abstract) 3 Refs.

L2 ANSWER 15 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN
 ACCESSION NUMBER: 2005(29):9537 COMPENDEX
 TITLE: Integrated bioanalytical microsystem.
 AUTHOR: Hsing, I.-Ming (Department of Chemical Engineering Hong Kong University of Science and Technology(HKUST),

Kowloon, Hong Kong); Cai, Hong
MEETING TITLE: 2004 7th International Conference on Solid-State and Integrated Circuits Technology Proceedings, ICSICT 2004.
MEETING ORGANIZER: Chinese Institute of Physics; IEEE Beijing Section
MEETING LOCATION: Beijing, China
MEETING DATE: 18 Oct 2004-21 Oct 2004
SOURCE: International Conference on Solid-State and Integrated Circuits Technology Proceedings, ICSICT v 3 2004.p 1767-1772, (IEEE cat n 04EX862)
SOURCE: 2004 7th International Conference on Solid-State and Integrated Circuits Technology Proceedings, ICSICT 2004
PUBLICATION YEAR: 2004
MEETING NUMBER: 65144
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental
LANGUAGE: English

AN 2005(29):9537 COMPENDEX

AB A newly developed integrated bio-microsystem that allows for sequence-specific DNA analysis is presented. Micro-fabricated Si/glass-based devices with functionalities of simultaneous polymerase chain reaction (PCR) target amplification and sequence-specific electrochemical (EC) detection have been successfully developed. The microdevice consists of a reaction **chamber** formed in a silicon substrate, and an EC sensor fabricated onto a glass substrate. **Heaters** and temperature sensors are patterned on top of the reaction **chamber** for thermal cycling of PCR. The glass substrate serves as not only a seal for the reaction **chamber** but also a platform for the EC detection of the PCR product. Both the amplification of the target DNA sequence and the subsequent EC detection of the PCR product are carried out inside the reaction **chamber**. Sequence-specific recognition of the target analyte is achieved through hybridization with the probe immobilized onto the **working electrode** on the glass substrate. Technical challenges of this PCR-EC microdevice and its application to the multiplex pathogen identification are elucidated. \$CPY 2004 IEEE. 4 Refs.

L2 ANSWER 16 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(33):107 COMPENDEX
TITLE: Screen-printed transcutaneous oxygen sensor employing polymer electrolytes.
AUTHOR: Lam, Yu-Zhi (Thick Film Unit School of Engineering Sciences University of Southampton, Southampton, United Kingdom); Atkinson, J.K.
SOURCE: Medical and Biological Engineering and Computing v 41 n 4 July 2003 2003.p 456-463
CODEN: MBECDY ISSN: 0140-0118
PUBLICATION YEAR: 2003
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English

AN 2003(33):107 COMPENDEX

AB A disposable, transcutaneous oxygen sensor has been designed and implemented using screen-printing technology for all fabrication stages. The sensor incorporates an integral **heating** element to promote transcutaneous diffusion of blood gases so that a reliable estimation of arterial blood gas concentration can be obtained. The oxygen sensing part of the device consists of a screen-printed Clark **cell** implemented as electrodes, electrolyte and membrane. A three-electrode configuration is employed with gold **working** and **counter electrodes** and a silver/silver chloride reference **electrode**. Several different polymer electrolyte and membrane materials were evaluated in the construction of the device, and their

performances were compared. A fully automated gas testing rig was constructed to enable oxygen levels to be varied under computer control. Cyclic voltammetry and static analysis of the sensors were carried out at different oxygen concentration levels and in various test environments. Linear relationships were established with an averaged sensitivity level of 0.02 $\mu\text{A}(\text{mmHg})^{-1}$ and high regression coefficients of 0.99. The prototype covered with a polytetrafluoroethylene membrane gave the experimental result of $I(\mu\text{A}) = -0.025\text{PO}_2(\text{mmHg}) - 0.085$. Several factors influenced the performance of the sensors. The investigations have greatly contributed towards an understanding of the suitability of the materials in achieving a viable, low-cost sensor. 24 Refs.

L2 ANSWER 17 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(10):2469 COMPENDEX
TITLE: Disposable screen-printed biosensor for transcutaneous oxygen measurement.
AUTHOR: Lam, Yu-Zhi (Thick Film Unit School of Engineering Sciences University of Southampton, Highfield, Southampton SO17 1BJ, United Kingdom); Atkinson, John
SOURCE: Measurement Science and Technology v 13 n 12 December 2002 2002.p 2074-2081
CODEN: MSTCEP ISSN: 0957-0233
PUBLICATION YEAR: 2002
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English

AN 2003(10):2469 COMPENDEX

AB A disposable transcutaneous oxygen sensor has been designed and fabricated in-house employing screen-printing methods so as to achieve cost-effective and reliable production. The oxygen sensing module of the device is based on the amperometric Clarke cell principle. A three-electrode configuration consisting of miniature gold **working** and **counter-electrodes** and a silver/silver chloride reference **electrode** is screen-printed onto alumina substrate resulting in approximately 15 μm thickness layers. A platinum **heater** element is integrated into the design to make transcutaneous measurements, typically at 44 deg C. The performances of different screen-printed membrane materials have been evaluated in both hydrated and dry test conditions using cyclic voltammographs and static tests where the devices are subjected to different oxygen levels. All measurements are made by a fully automated computer-controlled gas rig. 15 Refs.

L2 ANSWER 18 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2002(28):2758 COMPENDEX
TITLE: Measurements of critical pitting temperature and pitting potential for stainless steels by using crevice corrosion preventing electrode.
AUTHOR: Yamazaki, Osamu (Technical Research and Devmt. Labs. Nippon Kinzoku Co., Ltd., Tokyo 174-8560, Japan); Shibata, Toshio
SOURCE: Zairyo to Kankyo/ Corrosion Engineering v 51 n 1 2002.p 30-34
CODEN: ZAKAEP ISSN: 0917-0480
PUBLICATION YEAR: 2002
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: Japanese

AN 2002(28):2758 COMPENDEX

AB A newly designed **working electrode** on which occurrence of crevice corrosion is prevented with the flushed port **cell** has been developed in order to measure the critical pitting temperature, CPT, and pitting potential, Epit, for stainless steels. In the solution temperature range from 25deg C to 100deg C, the difference between the

electrode surface temperature and bulk solution temperature could be maintained within 0.3deg C in measuring CPT by using a pre-heating flushed water system. The measured values of CPT as well as Epit which were obtained from 12 trials of the measurement under the same condition, were found to obey the normal distribution. Epit at the constant temperature equivalent to CPT was found not to coincide with the setting potential for CPT due to the film formation in the CPT measurement. The mean value and deviation of E pit obtained by using the crevice corrosion preventing electrode were almost equal to those of Epit measured in the JIS method (JIS G 0577-1981). The newly developed method would be successfully applied to evaluate the difference in pitting corrosion resistance arising from the difference of surface finishing such as 2 D, 2 B, and BA, and the surface treatment of stainless steel. 8 Refs.

L2 ANSWER 19 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2001(7):893 COMPENDEX
TITLE: Thermal activation of electrochemical processes in a Rf-heated **channel** flow **cell**: Experiment and finite element simulation.
AUTHOR: Qiu, Fulian (Oxford Univ, Oxford, UK); Compton, Richard G.; Coles, Barry A.; Marken, Frank
SOURCE: Journal of Electroanalytical Chemistry v 492 n 2 Oct 2000. p 150-155, Elsevier Sequoia SA, Lausanne, Switzerland
CODEN: JECHES ISSN: 0022-0728
PUBLICATION YEAR: 2000
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English

AN 2001(7):893 COMPENDEX

AB A novel approach to thermoelectrochemistry is presented which involves the direct **heating** of the **working electrode** in a **channel** flow **cell** system by eddy currents caused by 8 MHz radio frequency (Rf) radiation. For the model redox systems Fe(CN)6^{3-/4-} and Ru(NH3)6^{3+/2+} it is shown that it is possible to perform electrochemical experiments with simultaneous thermal activation at temperatures close to the boiling point of the electrolyte solution. Quantitative analysis of data obtained from thermoelectrochemical studies in the Rf-heated **channel** flow system is possible with the help of a computer model. Numerical simulation results obtained with a finite element program (FIDAPTM) for the complex heat and mass flow during voltammetric experiments at the heated electrode are shown to be in quantitative agreement with experimental data. Both the increase in the rate of diffusion as well as the change in the flow pattern in the heated low viscosity region of the **channel** are shown to contribute significantly to the enhanced mass transport. After confirming the quantitative agreement of the numerical model with the data obtained for the oxidation of Fe(CN)6⁴⁻ and the reduction of Fe(CN)6³⁻ in 0.1 M KCl, the activation energy for the Ru(NH3)6^{3+/2+} redox system diffusion in 0.1 M KCl is determined. (Author abstract) 24 Refs.

L2 ANSWER 20 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1999(46):3624 COMPENDEX
TITLE: Temperature controlled **cell** for in situ infrared spectroelectrochemical measurements and its use in the study of CO isothermal desorption.
AUTHOR: Huang, Jimin (Texas Tech Univ, Lubbock, TX, USA); Korzeniewski, Carol
SOURCE: Journal of Electroanalytical Chemistry v 471 n 2 1999.p 146-150
CODEN: JECHES ISSN: 0022-0728
PUBLICATION YEAR: 1999
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental

LANGUAGE: English

AN 1999(46):3624 COMPENDEX

AB An infrared spectroelectrochemical **cell** capable of operation at temperatures between ambient and 70 degree C is described. The **cell** is based on a conventional design with temperature sensing and **heating** functions built into the **working electrode**. The **cell** was applied to study the isothermal desorption of carbon monoxide from a polycrystalline platinum electrode. The measurements indicate CO desorption can be activated by the solvent. In acetonitrile containing 0.1 M tetrabutyl ammonium tetrafluoroborate (TBAF), the lifetime of a CO adlayer decreased progressively from about 6 h to less than 2 h when CO desorption was monitored at constant temperatures in the range 25-45 degree C and potentials between 0.0-0.2 V (vs. a Ag vertical bar AgCl vertical bar KCl (sat) reference electrode). In contrast, CO was stable on platinum electrodes in 0.1 M HClO₄ at temperatures between ambient and 40 degree C, as long as the electrode was maintained at double layer potentials. In acetonitrile solutions, the addition of chloride, oxygen or one of several organic impurities had little effect on the CO desorption behavior. (Author abstract) 34 Refs.

L2 ANSWER 21 OF 26 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1992(7):86484 COMPENDEX

DOCUMENT NUMBER: 920789244

TITLE: Thermodynamics of formation of tetramagnesium niobate from e.m.f. measurements.

AUTHOR: Raghavan, S. (Indian Inst of Technology, Madras, India)

SOURCE: L Alloys Compd v 177 n 2 Dec 13 1991 p L21-L24
CODEN: JALCEU ISSN: 0925-8388

PUBLICATION YEAR: 1991

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 1992(7):86484 COMPENDEX DN 920789244

AB The tetramagnesium niobate was prepared from dried reagent grade MgO and Nb₂O₅ by mixing in stoichiometric proportions and sintering the oxide mixture pellets at 1623 K under air for 48 h with intermittent grinding. The formation of the niobate was confirmed by X-ray diffraction. The appropriate compounds, prepared earlier, were mixed in roughly equimolar proportions to make the electrode pellets. About 10-15 weight% of magnesium fluoride was then added to the mixture which was pressed into a pellet at 235 MPa and finally sintered at 1273 K in dry CO₂-free oxygen gas before use. In the **cell** the magnesium fluoride solid electrolyte pellet was sandwiched between the reference electrode and **working electrode** pellets. The **cell** was electrically connected to a Keithley 617 electrometer by means of platinum leads connected to platinum foils pressing against the outer pellets. The experimental values of the e.m.f.s of the **cell** on **heating** and cooling are plotted as a function of temperature. The e.m.f.s vary linearly with temperature within experimental error in the temperature range 1245-1292 K. 7 Refs.

L2 ANSWER 22 OF 26 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2005:8412142 INSPEC

DOCUMENT NUMBER: A2005-13-8780B-014; B2005-06-7230J-052

TITLE: Integrated bioanalytical microsystem

AUTHOR: I-Ming Hsing; Hong Cai (Dept. of Chem. Eng., Hong Kong Univ. of Sci. & Technol., China)

SOURCE: 2004 7th International Conference on Solid-State and Integrated Circuits Technology Proceedings (IEEE Cat. No. 04EX862), vol.3, 2005, p. 1767-72 vol.3 of 3 vol. 2398 pp., 4 refs.
Editor(s): Ru Haung; Min Yu; Liou, J.J.; Hiramoto, T.;

Claeys, C.
ISBN: 0 7803 8511 X
Price: 0-7803-8511-X/04/\$20.00
Published by: IEEE, Piscataway, NJ, USA
Conference: 2004 7th International Conference on
Solid-State and Integrated Circuits Technology
Proceedings, Beijing, China, 18-21 Oct. 2004
Conference; Conference Article
Practical; Experimental
United States
English

DOCUMENT TYPE:
TREATMENT CODE:
COUNTRY:
LANGUAGE:

AN 2005:8412142 INSPEC DN A2005-13-8780B-014; B2005-06-7230J-052
AB A newly developed integrated bio-microsystem that allows for
sequence-specific DNA analysis is presented. Micro-fabricated
Si/glass-based devices with functionalities of simultaneous polymerase
chain reaction (PCR) target amplification and sequence-specific
electrochemical (EC) detection have been successfully developed. The
microdevice consists of a reaction **chamber** formed in a silicon
substrate, and an EC sensor fabricated onto a glass substrate.
Heaters and temperature sensors are patterned on top of the
reaction **chamber** for thermal cycling of PCR. The glass
substrate serves not only as a seal for the reaction **chamber**
but also as a platform for the EC detection of the PCR product. Both the
amplification of the target DNA sequence and the subsequent EC detection
of the PCR product are carried out inside the reaction **chamber**.
Sequence-specific recognition of the target analyte is achieved through
hybridization with the probe immobilized onto the **working**
electrode on the glass substrate. Technical challenges of this
PCR-EC microdevice and its application to multiplex pathogen
identification are elucidated

L2 ANSWER 23 OF 26 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2003:7697001 INSPEC
DOCUMENT NUMBER: A2003-17-8770-004; B2003-09-7510-006
TITLE: Screen-printed transcutaneous oxygen sensor employing
polymer electrolytes
AUTHOR: Lam, Y.Z.; Atkinson, J.K. (Sch. of Eng. Sci., Univ. of
Southampton, UK)
SOURCE: Medical & Biological Engineering & Computing (July
2003), vol.41, no.4, p. 456-63, 24 refs.
CODEN: MBECDY, ISSN: 0140-0118
SICI: 0140-0118(200307)41:4L:456:SPTO;1-#
Price: 0140-0118/03/\$20.00
Published by: Peter Peregrinus for Int. Fed. Med. &
Biol. Eng, UK
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical
COUNTRY: United Kingdom
LANGUAGE: English

AN 2003:7697001 INSPEC DN A2003-17-8770-004; B2003-09-7510-006
AB A disposable, transcutaneous oxygen sensor has been designed and
implemented using screen-printing technology for all fabrication stages.
The sensor incorporates an integral **heating** element to promote
transcutaneous diffusion of blood gases so that a reliable estimation of
arterial blood gas concentration can be obtained. The oxygen sensing part
of the device consists of a screen-printed Clark **cell**
implemented as electrodes, electrolyte and membrane. A three-electrode
configuration is employed with gold **working** and **counter**
electrodes and a silver/silver chloride reference
electrode. Several different polymer electrolyte and membrane
materials were evaluated in the construction of the device, and their
performances were compared. A fully automated gas testing rig was
constructed to enable oxygen levels to be varied under computer control.
Cyclic voltammetry and static analysis of the sensors were carried out at

different oxygen concentration levels and in various test environments. Linear relationships were established with an averaged sensitivity level of 0.02 $\mu\text{A}(\text{mmHg})^{-1}$ and high regression coefficients of 0.99. The prototype covered with a polytetrafluoroethylene membrane gave the experimental result of $I (\mu\text{A}) = -0.025 \text{ PO}_2 (\text{mmHg}) - 0.085$. Several factors influenced the performance of the sensors. The investigations have greatly contributed towards an understanding of the suitability of the materials in achieving a viable, low-cost sensor

L2 ANSWER 24 OF 26 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2003:7552354 INSPEC
DOCUMENT NUMBER: A2003-08-8780B-005; B2003-04-7230J-017
TITLE: Disposable screen-printed biosensor for transcutaneous oxygen measurement
AUTHOR: Yu-Zhi Lam; Atkinson, J. (Thick Film Unit, Southampton Univ., UK)
SOURCE: Measurement Science & Technology (Dec. 2002), vol.13, no.12, p. 2074-81, 15 refs.
CODEN: MSTCEP, ISSN: 0957-0233
SICI: 0957-0233(200212)13:12L:2074:DSPB;1-N
Price: 0957-0233/02/122074+08\$30.00
Doc.No.: S0957-0233(02)36561-5
Published by: IOP Publishing, UK
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical
COUNTRY: United Kingdom
LANGUAGE: English

AN 2003:7552354 INSPEC DN A2003-08-8780B-005; B2003-04-7230J-017

AB A disposable transcutaneous oxygen sensor has been designed and fabricated in-house employing screen-printing methods so as to achieve cost-effective and reliable production. The oxygen sensing module of the device is based on the amperometric Clarke cell principle. A three-electrode configuration consisting of miniature gold **working and counter-electrodes** and a silver/silver chloride reference **electrode** is screen-printed onto alumina substrate resulting in approximately 15 μm thickness layers. A platinum **heater** element is integrated into the design to make transcutaneous measurements, typically at 44°C. The performances of different screen-printed membrane materials have been evaluated in both hydrated and dry test conditions using cyclic voltammographs and static tests where the devices are subjected to different oxygen levels. All measurements are made by a fully automated computer-controlled gas rig

L2 ANSWER 25 OF 26 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1998:5967409 INSPEC
DOCUMENT NUMBER: A1998-16-6865-025
TITLE: Preparation, structure and electrochemical property of pyrolytic carbon from graphite oxide
AUTHOR: Matsuo, Y.; Sugie, Y. (Dept. of Appl. Chem., Himeji Inst. of Technol., Hyogo, Japan)
SOURCE: Carbon (1998), vol.36, no.3, p. 301-3, 12 refs.
CODEN: CRBNAH, ISSN: 0008-6223
SICI: 0008-6223(1998)36:3L:301:PSEP;1-8
Price: 0008-6223/98/\$19.00+0.00
Published by: Elsevier, UK
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: United Kingdom
LANGUAGE: English

AN 1998:5967409 INSPEC DN A1998-16-6865-025

AB Graphite oxide (GO, C8O3.5H2.9) was prepared by the Brodie method. Natural graphite powder (2 g) in 60 ml of fuming nitric acid was oxidized for 3 hours by KClO₃ (16 g) at 60°C. The graphite oxide sample was

pyrolyzed by **heating** it under a dynamic vacuum at 300°C for 10 hours. The increase rate of the temperature was 1°C min⁻¹. The composition of the carbon sample was calculated from the data of the elemental analysis of carbon, hydrogen and oxygen. The electrochemical characteristic was investigated using a beaker type **cell** under an Ar gas atmosphere at 25°C. The electrolyte was 1M LiClO₄-ethylene carbonate/diethylene carbonate solution. Li metal was used for reference and **counter electrodes**. The decomposed carbon sample (10 mg) with 20% of Ni powder was sandwiched by Ni mesh. It was pressed under dynamic vacuum. The pellet was used for the **working electrode** after being dried at 80°C overnight. The charge-discharge property was investigated using a constant current method and the cut off voltages were 0 V and 3.0 V vs Li/Li⁺ reference electrode

L2 ANSWER 26 OF 26 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1995:5000132 INSPEC

DOCUMENT NUMBER: A1995-16-6610-001

TITLE: Electrodifussion study of a liquid-liquid interface

AUTHOR: Cognet, G.; (CNRS, Grenoble, France), Martemianov, S.; Pascal, G.; Sobolik, V.

SOURCE: Comptes Rendus de l'Academie des Sciences, Serie II (Mecanique-Physique-Chimie-Astronomie) (18 May 1995), vol.320, no.10, p. 505-8, 4 refs.

CODEN: CMCAEK, ISSN: 0764-4450

Price: 0764-4450/95/03200505\$2.00

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: France

LANGUAGE: French

AN 1995:5000132 INSPEC DN A1995-16-6610-001

AB A comparative study of solid/liquid and liquid/liquid interface has been performed using electrodifussion measurements with a gallium drop as a **working electrode**. The gallium transforms from solid to liquid state at 29.8°C, that is why one can ascertain the difference between mass transfer coefficient for solid and liquid interfaces in the same hydrodynamical conditions. The experiments were performed in a cylindrical **vessel** which was subjected to **heating** and agitation. The gallium electrode was placed at the bottom of the **vessel**. The transformation of the gallium electrode from the solid to the liquid state manifests itself in the decrease of the global mass transfer rate